USTAR
Turning innovation into industry.
Annual Report
JANUARY 2011

Nanotechnology Biosensors

A different kind of annual report
Bite-size pieces you might find time to read.

A High-Speed Hard Drive to Detect Cancer

U of U team uses technology found in your PC to detect tumor cells

Building on advances made in high-speed, high-sensitivity magnetic sensing, a team of University of Utah scientists and oncologists co-led by USTAR researcher Marc Porter has been awarded a federal grant totaling $3.2 million. The goal of the research is to create a nanotechnology-based platform for the early detection of pancreatic cancer.

Dr. Mark Porter

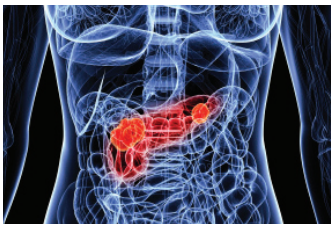
Clinicians at the Huntsman Cancer Institute and U of U School of Medicine are collaborating with USTAR researchers on the project.

The collaboration represents the power of USTAR to catalyze breakthrough efforts by multi-disciplinary teams of innovators. This "talent multiplier" effect was one of the hoped-for outcomes when the initiative launched in 2006.

A deadly target: Pancreatic cancer

The team will build upon an existing prototype to develop a fully-functional magnetic sensor and associated analytical tools. The goal is to produce an instrument that can use a drop of blood or other bodily fluid to identify and quantify hundreds of protein biomarkers that may indicate the presence of cancer, in a matter of seconds.

The project targets pancreatic cancer as the first step in proving the technology. Pancreatic cancer is the fourth most common cause of cancer-related deaths in the US. Currently there are few disease markers that can be detected early enough to have value in treating the cancer.



Detecting minute magnetic fluctuations

The scanner uses technology similar to a laptop hard drive. Sensors can detect minute magnetic fluctuations, which are indicators of the absence or presence of cancer biomarkers. Similar approaches are being used to meet the medical challenges of invasive fungal infections and tuberculosis.

Innovation-based economic development

Impact: USTAR researchers have attracted $102 million of new research funding to Utah, almost twice the state's investment so far.

USTAR focus areas:

1. Diversify Utah's economy with high quality jobs
2. Build Utah's innovation infrastructure
3. Recruit & grow world-class research talent
4. Commercialize technology and promote innovative entrepreneurship statewide

more info

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